AMENDMENTS TO THE CLAIMS

Please amend the claims as follows.

1. (Currently Amended) A method for improving the recovery efficiency of [[a]] storing [[of]] fresh water into an aquifer, the storing comprising [[an]] injecting [[of]] the fresh water and [[an]] extracting [[of]] the injected fresh water by a single water storage system comprising at least one well ~~(62)~~ penetrating [[into]] the aquifer, the method comprising:
providing a plurality of screens ~~(61a, 61b, 61c)~~, each screen being located alongside a wall of at least one well, and each screen respectively allowing a flow of fresh water between an associated storage zone in contact with the screen and the well on which the screen is located; and
controlling ~~(68, 69)~~ the flow of fresh water through each one of the plurality of screens according to parameters provided from a storage model of the aquifer, the storage model describing a behavior of each storage zone.

2. (Currently Amended) The method according to claim 1, further comprising:
monitoring a quality parameter ~~(TDS)~~ of the fresh water;
triggering a selecting step if the quality parameter reaches a critical value;
selecting a determined screen following the triggering;
modifying the flow of fresh water through the determined screen.

3. (Original) The method according to claim 2, further comprising:
providing the plurality of screens, each screen being located alongside the wall of a single well.

4. (Original) The method according to claim 3 , further comprising:
extracting the fresh water from the aquifer;
monitoring the quality parameter of the extracted fresh water at an exit of the single well;

selecting an open screen following the triggering, the open screen being located as the deepest open screen alongside the single well among all open screens of the plurality of screens;

stopping the flow of fresh water through the selected open screen.

5. (Original) The method according to claim 4, further comprising:

positioning a seal inside the single well in proximity of the selected screen, to stop the flow of fresh water through the selected screen.

6. (Original) The method according to claim 3, further comprising:

extracting the fresh water from the aquifer;

monitoring the quality parameter of the fresh water at each screen of the plurality of screens;

selecting an open screen following the triggering, the screen corresponding to a location alongside the single well at which the quality parameter reaches the critical value;

stopping the flow of fresh water through the selected open screen.

7. (Original) The method according to claim 6, further comprising:

activating a closing mechanism at the selected screen, to stop the flow of fresh water through the selected screen.

8. (Original) The method according to claim 3, further comprising:

injecting the fresh water into the aquifer through a first screen, the first screen being located as the deepest screen alongside the single well;

monitoring the quality parameter of liquid at an outside part of each screen of the plurality of screens distinct from the first screen, the outside part being in contact with a storage zone;

selecting a second screen among the plurality of screens following the triggering, the second screen being distinct from the first screen, and the second screen corresponding to a location alongside the single well at which the quality parameter reaches the critical value;

enabling the flow of fresh water through the second screen.

9. (Currently Amended) The method according to claim 2, further comprising:
providing a main well ~~(112a)~~;
providing at least one peripheral well ~~(112b)~~, the peripheral well being distinct from the main well;
providing at least one screen from the plurality of screens for respectively each one of the main well and the peripheral wells.

10. (Original) The method according to claim 9, further comprising:
injecting the fresh water into the aquifer through a screen located alongside the main well;
monitoring the quality parameter of liquid at an outside part of each screen located on a peripheral well, the outside part of each screen being in contact with a storage zone;
following the triggering, selecting a screen at which the quality parameter reaches the critical value;
injecting the fresh water into the aquifer through the peripheral well on which the selected screen is located.

11. (Currently Amended) The method according to ~~anyone of claims~~ claim 2 ~~1 to 10~~ wherein:
the quality parameter is a total dissolved salt parameter.

12. (Currently Amended) A water storage system with improved recovery efficiency of a storing of fresh water into an aquifer, the storing comprising an injecting of the fresh water and an extracting of the injected fresh water by the water storage system, the water storage system comprising:
at least one well penetrating into the aquifer;
a plurality of screens ~~(51a, 51b, 51c)~~, each screen being located alongside a wall of at least one well, and each screen respectively allowing a flow of fresh water between an associated storage zone in contact with the screen, and a well on which the screen is located;

controlling means to control the flow of fresh water through each one of the plurality of screens according to parameters provided from a storage model ~~(54)~~ of the aquifer, the storage model describing a behavior of each storage zone.

13. (Currently Amended) The water storage system of claim 12, further comprising :
a main well ~~(112a)~~;
at least one peripheral well ~~(112b)~~, the peripheral well being distinct from the main well;
a sensor system respectively for each peripheral well, the sensor system measuring a value of a quality parameter over the liquid in an associated storage zone of a screen located on the peripheral well.

14. (Original) The water storage system of claim 13, further comprising:
a first pump for injecting the fresh water into the main well;
a second pump for injecting the fresh water into a peripheral well;
processing means receiving a signal from the sensor system;
wherein the controlling means are triggered to initiate the second pump for a determined peripheral well if the processing means output a signal indicating that the quality parameter at a screen of the determined peripheral well reaches a critical value.

15. (Original) The water storage system of claim 12, further comprising:
a main well;
at least one peripheral well, the peripheral well being distinct from the main well;
a measuring device to measure a quantity of fresh water that passes through the main well and the quantity of fresh water that passes through each one of the peripheral well;
wherein the controlling means receive a signal from the measuring device and control the flow of fresh water according to the signal from the measuring device correlated to the storage model.

16. (Currently Amended) The water storage system of claim 12, wherein the plurality of screens ~~(81a, 81b, 81c, 81d)~~ is located alongside a wall of a single well ~~(82)~~.

17. (Original) The water storage system of claim 16, further comprising:
a sensor system to measure a quality parameter of the fresh water at an exit of the well.

18. (Currently Amended) The water storage system of claim 16, further comprising:
a sensor system ~~(86a, 86b, 86c, 86d)~~ respectively for each screen, the sensor system allowing to measure a quality parameter of the fresh water flowing through the screen.

19. (Currently Amended) The water storage system according to ~~any one of claims~~ claim 17 ~~or 18~~, further comprising:
a seal allowing to isolate a portion of the well that is located below the seal from a portion of the well that is located above the seal;
operating means for catching and moving the seal inside the well.

20. (Original) The water storage system of claim 19, further comprising:
processing means receiving a signal from a sensor system;
wherein the controlling means are triggered to initiate the operating means if the processing means output a signal indicating that the quality parameter passes a critical value, allowing to stop the flow of the fresh water through a screen located below the seal.

21. (Currently Amended) The water storage system according to ~~any one of claims~~ claim 17 ~~or 18~~, further comprising:
a closing mechanism respectively for each screen to stop the flow of fresh water through the screen.

22. (Original) The water storage system of claim 21, further comprising:
processing means receiving a signal from a sensor system;
wherein the controlling means are triggered to initiate a determined closing mechanism if the processing means output a signal indicating that the quality parameter passes a critical value.

23. (Original) The method according to claim 2, further comprising:

injecting the fresh water into the aquifer;

extracting the fresh water from the aquifer;

the selecting and the modifying being performed such as to keep the quality parameter of the fresh water being extracted in a desired range;

interrupting the extracting of the fresh water if the quality parameter is outside of the desired range.

24. (Original) The method according to claim 23, wherein the injecting, the extracting and the interrupting are repeated in at least one cycle following the interrupting.

25. (Currently Amended) The method according to ~~anyone of claims~~ claim 23 ~~or 24~~, wherein the interrupting comprises selectively interrupting the extracting from one determined storage zone of the aquifer if the quality parameter from the fresh water extracted out of the determined zone is outside the desired range.

26. (New) The method according to claim 3 wherein: the quality parameter is a total dissolved salt parameter.

27. (New) The method according to claim 4 wherein: the quality parameter is a total dissolved salt parameter.

28. (New) The method according to claim 5 wherein: the quality parameter is a total dissolved salt parameter.

29. (New) The method according to claim 6 wherein: the quality parameter is a total dissolved salt parameter.

30. (New) The method according to claim 7 wherein: the quality parameter is a total dissolved salt parameter.

31. (New) The method according to claim 8 wherein: the quality parameter is a total dissolved salt parameter.

32. (New) The method according to claim 9 wherein: the quality parameter is a total dissolved salt parameter.

33. (New) The method according to claim 10 wherein: the quality parameter is a total dissolved salt parameter.

34. (New) The water storage system according to claim 18, further comprising:
a seal allowing to isolate a portion of the well that is located below the seal from a portion of the well that is located above the seal; operating means for catching and moving the seal inside the well.

35. (New) The water storage system according to claim 18, further comprising: a closing mechanism respectively for each screen to stop the flow of fresh water through the screen.

36. (New) The method according to claim 24, wherein the interrupting comprises selectively interrupting the extracting from one determined storage zone of the aquifer if the quality parameter from the fresh water extracted out of the determined zone is outside the desired range.